Smart indoor parking system based on Dijkstra's algorithm

ABSTRACT

Smart Indoor Parking System is a parking system that assigns the car to the nearest parking to the entrance by using Dijkstra's Algorithm and assigns according to the size of the car. There are many types of parking system have been proposed such as smart parking system by using Wireless Sensor Network (WSN) but all these methods have their own advantage and limitation. Besides that, there are also several problems with the current parking system such as lack of parking management system efficiency. Therefore, this Smart Indoor Parking System is proposed to increase the efficiency of current parking management system. The aim of this Smart Indoor Parking System is to provide the customer with the nearest parking to the entrance. The parking is assigned according to the size of the car to utilize the parking space. Then, the parking place is displayed on the monitor besides the boom gate before allowing the driver to enter the parking lot. The parking number will help the driver to be able to find a parking lot in a short period of time without the need to search the parking by themselves. The priority is given to the driver who presses the button first. The input signal from the IR sensor located at the entrance and the parking lot is processing to assign the nearest parking lot based on Dijkstra's Algorithm. In this project, the simulation is carried out by using Proteus. This simulation includes all the circuits for determining the direction of the nearest parking lot. Programming in the Arduino is implemented to calculate the nearest parking lot based on Dijkstra's Algorithm. In conclusion, the Smart Indoor Parking System can be used in the real-time application.

Keyword: Dijkstra's algorithm; A smart parking system; Arduino; Midsize class car; Compact class car